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10/749,692	12/29/2003	Arieh Don	07072-159001	2149

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SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
Office Action Summary	10/749,692	DON ET AL.
	Examiner	Art Unit	
	Helene Rose	2163	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>02 November 2006</u>.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-17</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-17</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>29 December 2003</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____.

        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Detailed Action

1. In response to communication entered on 10/30/2006, Claims 1-17 are pending. No claims were added, nor cancelled.

2. Applicants arguments with respect to claims 1-17 have been fully considered but they are not persuasive.

Drawings

3.   In view of the objection made to the drawings because the newly submitted drawings, that were submitted on November 17, 2004 did not disclose Figure 2 as disclosed within the specification on page 4.

Examiner **withdraws** the pending objection due to applicant's submission of Figure 2 to overcome the objection.

Claim Rejections – 35 U.S.C 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5.   Claims 1-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Kedem et al. (US Patent No. 6,363,385, Filing Date of Patent: June 29, 2002, hereinafter Kedem).

The applied reference has a common assignee (EMC Corporation) with the instant

application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art

under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a

showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was

derived from the inventor of this application and is thus not the invention "by another," or by an

appropriate showing under 37 CFR 1.131.

Claims 1 and 16:

Regarding Claims 1 and 16 discloses a method/computer readable medium utilizing the

same functionality, wherein Kedem teaches a method/computer readable medium having thereon

software for processing a request from a host to write a database record to a target location on a

logical device associated with a data-storage system in data communication with the host, the

software comprising instructions that when executed, cause a computer to:

maintain, at the data storage system, information identifying extents of the logical device that

are designated for storage of database records (column 4, lines 17-21, wherein the requesting host

application achieves this result by issuing a special copy command that identifies a file in a source

device such as the file 36 and destination for that file such as the storage location in the DEST A

device, Kedem); and

on the basis of the information, determine whether the target location is one on which a

database record is permitted to be stored (column 4, lines 50-59, wherein an individual write pending

slot such as a write pending slot includes a header, wherein an individual write pending slot such as a

write pending slot includes a header followed by the data in a data block, wherein this data block will

contain the data for one physical track, each header includes a WP flag that indicates a need for write

operations or destination of data from one of the write pending slots to some location in a physical

disk device, wherein once the data is transferred from the cache memory to a corresponding data

storage device such as a source device the system clear the WP bit for that slot, Kedem).

Claim 2:

Regarding Claim 2, Kedem teaches wherein maintaining information identifying extents

comprises maintaining an extent table having extent table entries identifying properties associated

with the extent (columns 4, lines 62-67 and lines 1-11, wherein the device headers includes on entry

for each logical device in the Symmetric DASD, wherein three such entries are shown, entry 47 for

the device, entry 48, for the device 33, and entry 50 for the device 35m wherein each of the entries

has the same organization, wherein the device entry 47 includes a header and a plurality of entries

for each cylinder in the device 31 and so forth, see Figure 2, all features, wherein the table and

properties are illustrated, Kedem).

Claim 3:

Regarding Claim 3, Kedem teaches wherein selecting the properties to include information

identifying a set of data verification steps to be carried out when data is written into the extent

(column 7, lines 42-55, wherein a password entry 104 enables a host source or destination device to

verify requests, wherein a TOD field 105 contains the time at which the extents track was formed,

wherein this information is available for use by a host application and a field 106 identifies a first

extent that is always 0 to indicate the first record in a track and a last extent entry 107 identifies the

last used extent relative to the extent in the first extent entry 106 and column 8, lines 41-44, wherein

such verification might include determining that the first address is a valid address and is the same

address as might be recorded in the device header, particularly the device starting location 114 in

FIG. 3 and wherein any of a number of other tests may also be performed to verify the context and

content of the system call, Kedem)

Claim 4:

Regarding Claim 4, Kedem teaches wherein identifying the logical device to be a logical device on which database records are to be written (column 10, lines 45-50, wherein identifying the single track being written from the source host application, wherein the copy program shown in Figure 8, responds by writing that single track form the source device to the destination device, Kedem).

Claim 5:

Regarding Claim 5, Kedem teaches wherein identifying a set of data verification steps to be carried out in connection with writing data to an extent (column 9, lines 22-30, wherein extents track is set to be write pending, and so forth, Kedem).

Claim 6:

Regarding Claim 6, Kedem teaches carrying out the data verification steps (column 8, lines 45-58, wherein assuming verification control passes, Kedem).

Claim 7:

Regarding Claim 7, Kedem teaches wherein determining whether the target location is one on which a database record is permitted to be stored comprises determining that the target location is contained completely within an extent (column 9, lines 17-20, wherein once all information has been transferred to the track ID tables associated with the destination device the protection bits in the session column are set for each track on the entire extent for the source device, Kedem).

Claim 8:

Regarding Claim 8, Kedem teaches wherein determining whether the target location is one on which a database record is permitted to be stored comprises determining that the target location is contained completely within one or more extents, all of which share the same data verification

steps (Figure 6, all features, and column 8, lines 37-47, wherein the host adapter in the data storage

facility such as the host adapter receives an establish extents system call, the destination device

controller such as the destination device controller receives the system call and verifies various

parameters and column 11, lines 34-37, wherein initially the host adapter uses the same process

shown in Figure 6, diagrams 123-126, and sends the request record to the destination device adapter,

Kedem).

<u>Claims 9 and 17</u>:

Regarding Claims 9 and 17, Kedem teaches a method/computer readable medium having

encoded thereon software for processing an I/O request to access a storage device having a plurality

of extents defined thereon, each of the extents having a corresponding set of processing instructions

associated therewith, the software including instructions that, when executed, cause a computer to:

receive an I/O request having an associated target location on the storage device (column 8,

lines 39-40, wherein receives the system call and verifies various parameters, Kedem);

identify an extent set associated with the target location (Figure 7, diagram 138, Kedem), the

extent set having at least one extent (column 7, lines 60-67, wherein extents track includes one or

more extent buffers such as the extents buffer and in the destination A device includes only one

extents buffer is included in the extent track, Kedem);

determine that the processing instructions associated with all of the extents within the extent

set can be executed (column 7, lines 22-27, wherein the process can be repeated during a given

session, Kedem).

executing the I/O transaction (column 8, lines 29-30, wherein may or may not generate an

I/O request, Kedem); and

execute processing instructions consistent with the extent set associated with the target

location (column 8 lines 65-67, Kedem).

Claim 10:

Regarding Claim 10, Kedem teaches wherein receiving an I/O request comprises receiving a

write request (Figure 9, diagram 170, wherein receive the write request from the source application,

Kedem).

Claim 11:

Regarding Claim 11, Kedem teaches selecting the processing instructions to be instructions

for verifying that the writing of the data to the target location was carried out successfully (Figure

11, diagram 211, wherein it determines if the process is complete, Kedem).

Claim 12:

Regarding Claim 12, Kedem teaches wherein determining that the processing instructions

associated with all of the extents within the extent set can be executed comprises determining that

none of the extents associated with the target location overlap with each other (column 12, lines 42-

45, wherein the establish of the extents track will again produce a single extents track because both

the files are in non-overlapping locations in the same source device, Kedem).

Claim 13:

Regarding Claim 13, Kedem teaches wherein determining that the processing instructions

associated with all of the extents within the extent set can be executed comprises determining that

the target location includes overlapping extents, and that the processing instructions associated with

the overlapping extents are compatible (column 13, lines 3-11, Kedem).

Claim 14:

Regarding Claim 14, Kedem teaches a data-storage system comprising:

a logical device having a plurality of extents defined thereon (column 3, lines 59-65, wherein

logical volume may comprise a portion of a single physical device, complete physical device,

portions of multiple physical devices or even multiple complete physical devices, Kedem), each of

the extents having a corresponding set of processing instructions associated therewith (column 8,

lines 62-67, wherein selects and locks the corresponding extents track in step so that no additional

changes may be made so that extents track, wherein for each track in the destination device step

performs a number of functions, Kedem); and

information identifying each extent on the logical device and the processing instructions

associated with that extent (column 9, lines 43-50, wherein source device controller reads the extents

track such as the extents track, wherein uses the data from the extents track to obtain the location of

the initial destination track and identifies the destination device so the two items specifically located

the first destination track with the data storage facility and lines 54-55, wherein the test determines

whether it is necessary to copy a specific track from the source destination, Kedem).

Claim 15:

Regarding Claim 15, Kedem teaches wherein the information identifying each extent

comprises an extent table having an extent table entry corresponding to an extent on the logical

device (column 9, lines 17-20, wherein once all the information has been transferred to the track ID

tables associated with the destination device, the protection bits in the session column are set for

each track on the entire extent for the source device, Kedem).

EXAMINER RESPONSE TO APPLICANT'S ARGUMENTS

6.   Applicant argues Kedem, fails to teach claim 1's limitation of:

"maintaining, at the data storage system, information identifying extents of the logical device that are designated for storage of database record".

Examiner is not persuaded. Referring to column 6, lines 19-23, wherein if the file SMMF command identifies the file, the copy program will transfer from the two non-contiguous sites in the source device to the contiguous track locations in the DEST B device, wherein logical device is interpreted to be one or more physical device slices that the operating system treats as a single device, which is interpreted to be the DEST B device, wherein "contiguous", is interpreted to be placed adjacently; one after another, and wherein this is interpreted and equivalent to "information identifying extents of the logical device that are designated for storage of database record"; and column 4, lines 7-10, wherein the logical volume 31 is a source and so is termed a source device 31 while the logical volumes 33 and 35 are destinations and are termed a DEST A device 33 and DEST B device 35, which is interpreted to be "maintaining, at the data storage system, information identifying extents of the logical device that are designated for storage of database record".

7.   Applicant argues Kedem, fails to claims 1's limitation of:

"determining whether a target location is one on which a database record is permitted to be stored".

Examiner is not persuaded. Referring to column 4, lines 11-20, wherein a requesting host application could determine a need to make a copy of that file at the storage locations in the DEST A device for use by the HOST APP B application, and wherein the requesting host application achieves this result by issuing a special copy command that identifies a file in a source device, such

as the file and a destination for that file, which is interpreted to be a "target location and database record is interpreted to be the file" such as the storage location in the DEST A device; column 4, lines 7-10, wherein the logical volume 31 is a source and so is termed a source device 31 while the logical volumes 33 and 35 are destinations and are termed a DEST A device 33 and DEST B device 35, which is interpreted to be a "logical device"; and column 5, lines 40-43, wherein a copy program that operates independently of the host processor, and wherein in response to a command with a particular data structure, in which a data structure is interpreted and defined to be a "description of the way in which information is organized within a database", and wherein an "database record" is interpreted to be a description of a single item as stored in a database, wherein this is interpreted and equivalent to "determining whether a target location is one on which a database record is permitted to be stored".

8.   Applicant argues Kedem, fails to teach claim 14's limitation of:

"a logical device having a plurality of extents defined thereon, each of the extents having a corresponding set of processing instructions associated therewith"; and

Examiner is not persuaded. Referring to "a logical device having a plurality of extents defined thereon", see column 3, lines 59-65, wherein a logical volume may comprise a portion of a single physical device, a complete physical device, portions of multiple physical devices or even multiple complete physical devices, wherein such logical devises may also contain discrete data sets or files, which is interpreted to be "logical device having a plurality of extents".

Referring to "each of the extents having a corresponding set of processing instructions associated therewith"; see column 7, lines 46-52, wherein A field identifies a first extent that is always 0 to indicate the first record in a track in one embodiment and a last extent entry identifies

the last used extent relative to the extent in the first extent entry and a PB offset vector entry

contains a number of entries that identify the first and last extent elements or buffers for a particular

session, which is interpreted to be "extents having a corresponding set of processing instructions".

9.   Applicant argues Kedem, fails to teach claim 14's limitation of:

"information identifying each extent on the logical device and the processing instructions

associated with the extent".

Examiner is not persuaded. Referring to column 7, lines 19-34, wherein the requesting host

application reads the extents track, such as each extents track assigned to this particular session,

which is interpreted to be the "information identifying each extent on the logical device", in which

the host application is interpreted to be an application running remotely on a host, wherein a host is

a PC or other computer connected to device, in which the device is interpreted to be the logical

device, wherein a logical device is defined to be one or more physical device slices that the operating

system treats as a single device, and wherein the process can be repeated during a given session,

wherein it performs various house keeping operations such as adding any new extents required by

the new command or eliminating any as previously defined extents that are no longer valid., in which

this is interpreted to be the "processing instructions associated with the extents", and wherein the

requesting host application resorts the extents list, wherein the extents list includes addresses in a the

cylinder block head format as a store field, and wherein the list us order by cylinder and by track for

the most efficient transfer of data with a minimal requirements for seek operations, and wherein

then builds extents track according to the structure.

10.   Applicant argues Kedem, fails to teach every limitation of claim 9, the limitation of:

"executing processing instructions consistent with the extent set associated with the target location".

Examiner is not persuaded. Referring to column 9, lines 43-50 wherein the source device controller reads the extent track such as the extents track uses the data from the extents track to obtain the location of the initial destination track, which is interpreted to be "executing processing instructions", and identifies the destination device so these two items specifically locate the first destination track within the data storage facility, wherein "two items" is interpreted to be the set, and wherein initial destination is interpreted to be the "target location".

11.   Applicant argues prior art fails to teach the limitation, "a corresponding set of processing instructions associated therewith", cited on page 10, within applicant remarks.

Examiner stated column 9, lines 43-50, in office action mailed out on 6/29/2006, wherein source device controller reads the extents track such as the extents track, wherein uses the data from the extents track to obtain the location of the initial destination track and identifies the destination device so the two items specifically located the first destination track with the data storage facility and lines 54-55, wherein the test determines whether it is necessary to copy a specific track from the source destination.

Applicant states (in regards to number 11 above) and request:
    The foregoing text merely describes setting and clearing locks. A track's lock is not a 'set of processing instructions associated" with that track and Applicant request that the Examiner

specifically identify processing instructions lock is believed to be associated with and to quote

verbatim wherein Kedam teaches this association, cited on page 11 of applicants remarks.

Examiner Response:

Examiner is not persuaded in regards to applicant's remarks. However, Referring to column

9, lines 43-50 wherein the source device controller reads the extent track such as the extents track

uses the data from the extents track to obtain the location of the initial destination track, which is

interpreted to be "executing processing instructions", and identifies the destination device so these

two items specifically locate the first destination track within the data storage facility, wherein "two

items" is interpreted to be the set.

Also, Referring to "a corresponding set of processing instructions associated therewith"; see

column 7, lines 46-52, wherein A field identifies a first extent that is always 0 to indicate the first

record in a track in one embodiment and a last extent entry identifies the last used extent relative to

the extent in the first extent entry and a PB offset vector entry contains a number of entries that

identify the first and last extent elements or buffers for a particular session, which is interpreted to

be "a corresponding set of processing instructions".

12.   Applicant states and request:

Claim 6, recites the additional limitation of actually "carrying out the data verification steps",

cited on page 15, within applicants remarks.

Examiner stated this claim limitation is taught by column 8, lines 45-58, in office action

mailed out on 6/29/2006, wherein applicant's argues this text has nothing to do with either updating

the CRC field or setting write-pending flags as discussed by the text cited in connection with claim 5.

Applicant states (in regards to number 12 above), hence it is <u>unclear how this can teach</u> the

actual execution alleged "data verification steps" identified in the passage cited in connection with

claim 5.

Examiner is not persuaded. Referring to column 8, lines 40-58, "wherein verifies various

parameters, and such verification might include determining that the first address is a valid address

an is the same address recorded in the device header, and wherein any number of test may also be

performed to verify the context and content of the system call, wherein assuming that the

verification control passes ………", is interpreted to be the "data verification steps", wherein a

number of test is also performed, which is interpreted and equivalent to 'data verification steps"

13.   <u>Applicant states and request</u>:

Claim 7, recite the additional limitation of "determining that the target location is contained

completely within an extent", cited on pages 15 and 17, within applicants remarks

Examiner stated "column 9, lines 17-20, wherein once all information has been transferred

to the track ID tables associated with the destination device the protection bits in the session

column are set for each track on the entire extent for the source device, within the office action

mailed out on 6/29/2006.

Applicant states (in regards to number 13 above) this passage refers to an extent on the source device and not on the target device.

Examiner is not persuaded. Referring to column 9, lines 17-20, wherein once all information has been transferred to the track ID tables associated with the destination device the protection bits in the session column are set for each track on the entire extent for the source device, wherein the protection bits in the session column are set, in which this ensures that the information is contained.

Referring to column 8, lines 54-58, wherein the request record has the data structure which includes the source device number in block or field, the record number of the starting extent in block or field, and the record number of the ending extent in block or field, which is equivalent and interpreted to be "target location" contained completely within an extent.

Prior Art of Record

(The prior art made of record and not relied upon is considered pertinent to applicant's disclosure)

1.   Kedem et al. (US Patent No. 6,363,385) discloses a method for copying a data file from a source device to a destination device.

2.   Lee et al. (US Patent No. 6,564,219) discloses a method and apparatus for obtaining an identifier of a logical unit of data that belongs to a database.

`3.   Bromley et al. (US Patent No. 6,772,290) discloses systems, methods, apparatus and software can utilize an indirect write driver to prevent possible error conditions associated with using a third-party copy operation directed at a storage resource

Point of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helene Rose whose telephone number is (571) 272-0749. The examiner can normally be reached on 8:00am - 4:30pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HRR
Technology Center 2100
January 3, 2007

WILSON LEE
PRIMARY EXAMINER